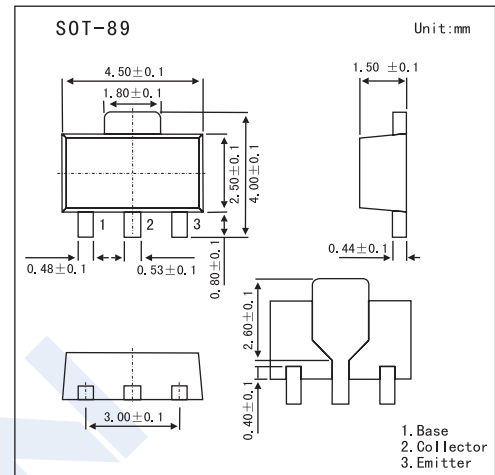


Digital Transistors

HR1F3P

■ Features

- Up to 2A High Current Drives Such As IC Outputs and Actuators Available
- On-chip Bias Resistor
- Low Power Consumption During Drive

■ Absolute Maximum Ratings $T_a = 25^\circ\text{C}$

Parameter	Symbol	Rating	Unit
Collector-Base Voltage	V_{CB0}	-60	V
Collector-Emitter Voltage	V_{CE0}	-60	V
Emitter-Base Voltage	V_{EB0}	-10	V
Collector Current (DC)	$I_{C(DC)}$	-1.0	A
Collector Current (Pulse)	$I_{C(pulse)} *1$	-2.0	A
Base Current (DC)	$I_{B(DC)}$	-0.02	A
Total Power Dissipation	$P_T *2$	2.0	W
Junction temperature	T_j	150	$^\circ\text{C}$
Storage temperature	T_{stg}	-55 to +150	$^\circ\text{C}$

*1 $PW \leq 10\text{ms}$, Duty Cycle $\leq 50\%$

*2 When $0.7\text{mm} \times 16\text{cm}^2$ ceramic board is used.

■ Electrical Characteristics $T_a = 25^\circ\text{C}$

Parameter	Symbol	Testconditions	Min	Typ	Max	Unit
Collector Cut-off Current	I_{CBO}	$V_{CB} = -60\text{V}$, $I_E = 0$			-100	nA
DC Current Gain	$h_{FE} *$	$V_{CE} = -2.0\text{V}$, $I_C = -0.1\text{A}$	150			
		$V_{CE} = -2.0\text{V}$, $I_C = -0.5\text{A}$	100			
		$V_{CE} = -2.0\text{V}$, $I_C = -1.0\text{A}$	50			
Low Level Output Voltage	$V_{OL} *$	$V_{IN} = -5.0\text{V}$, $I_C = -0.3\text{A}$			-0.3	V
Low Level Input Voltage	$V_{IL} *$	$V_{CE} = -5.0\text{V}$, $I_C = -100 \mu\text{A}$			-0.3	V
Input Resistance	R_1		1.54	2.2	2.86	k Ω
Emitter-Base Resistance	R_2		7	10	13	k Ω

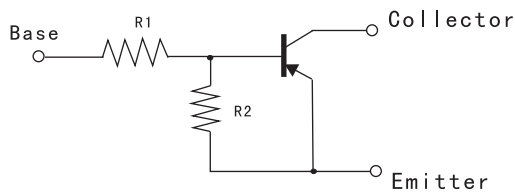
* $PW \leq 350 \mu\text{s}$, Duty Cycle $\leq 2\%$

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■ Marking

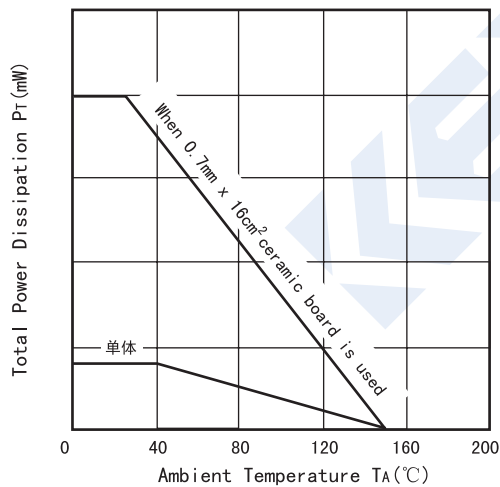
Marking	MQ
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■ Equivalent Circuit

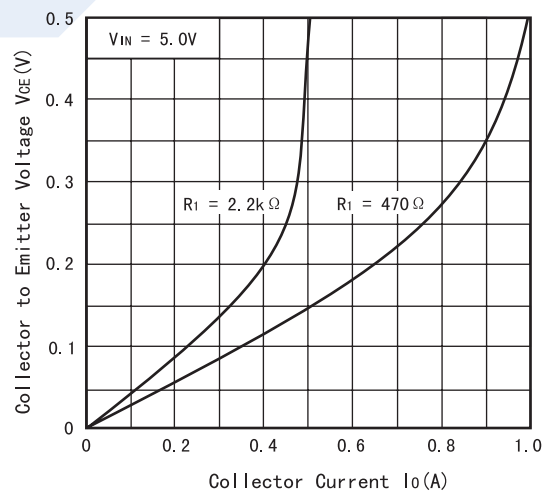


$R1 = 2.2k\Omega$ $R2 = 10k\Omega$

■ Electrical Characteristics Curves



TOTAL POWER DISSIPATION VS. AMBIENT TEMPERATURE



COLLECTOR TO EMITTER VOLTAGE VS. COLLECTOR CURRENT

HR1F3P

